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ELECTRIC POWER IN BULGARIA DURING THE SECOND FIVE-YEAR PLAN, 1953-1957

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By the end of the Second Five-Year Plan, the main branches of Bulgaria industry will have expanded as follows:

Branch of Industry	Level of Expansion in 1957 (% of 1952)
Over-all industry	160.0
State-Controlled	164.7
Electric power production	206.7
Fuel extraction	215.5
Ore extraction	202.2
Ferrous metallurgy	574.1
Nonferrous metallurgy	197.7
Machine building and metalworking	183.5
Chemicals	193.6
Production of construction materials	182.9
Glassmaking	201.7
Porcelain and china	175.0
Rubber	190.3

The above data indicate that, during the Second Five-Year Plan, the leading branches of heavy industry, such as electric power production, fuel extraction, ore extraction, and ferrous metallurgy, will expand at a greater rate than the other branches. The relative share of the main branches of industry in the total structure of industry during 1939, and as planned for 1957, is shown in the following table (in percent):

Branch of Industry	1939	1957
Electric power production	4.68	7.23
Metalworking	2.77	14.92
Chemicals	2.36	3.48
Rubber	0.98	2.11
Textiles	22.83	15.93
Food and beverages	37.62	27.30

As a result of structural changes taking place in industrial production, a number of important industrial branches, particularly those of heavy industry, which in the past have occupied last place in the structure of industry, will move forward considerably toward the end of the Second Five-Year Plan. Production of electric power will move from fifth place in 1939 to fourth place by the end of the Second Five-Year Plan; the metalworking industry, from seventh to third place; the chemical industry, from ninth to eight place; and the rubber industry, from twelfth to ninth place. The structure of industry and the national economy is being planned to make it possible to achieve the basic political and economic goal of the Second Five-Year Plan, namely, the rapid improvement of the material and cultural level of the working people.

Development of Electric Power

Electric power, along with hard coal, is a decisive factor in the technical reconstruction of Bulgaria's economy. Without sufficient production or utilization of electric power in the national economy, it is impossible to create the

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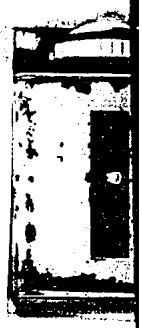

production base of socialism. During the First Five-Year Plan, production of electric power increased to 5.1 times that of 1939. During 1950 alone, production of electric power equaled the total for the three years preceding World War II. As a result of the increase in electric power production, there was approximately five times more electric power available per capita in 1952 than in 1939.

Development of electric power production will receive special attention during the Second Five-Year Plan. The outcome will be an increase of over 430,000 kilowatts of electric generating capacity. It is characteristic of the Second Five-Year Plan that production in hydroelectric power stations will increase more rapidly than that in thermal electric power stations, as shown in the following table:

Production of Electric Power	1957 (% of 1952)
Total	201.9
By thermal electric power stations	183.2
By hydroelectric power stations	224.5

Hydroelectric Power Stations

The increased rate of growth of hydroelectric power stations, in comparison with that under the First Five-Year Plan, will lead to an increase in their relative share in total electric power production. Consequently, the structural changes taking place in power production itself to the advantage of hydroelectric power stations will have a positive effect on the expansion of industry and the national economy, since power produced by hydroelectric power stations is the least expensive.

The total capacity of power stations put into operation during the Second Five-Year Plan will be 3.5 times greater than the total capacity of stations put into operation before 1939; the capacity of hydroelectric power stations in 1957 will be almost three times that in 1952. During the Second Five-Year Plan, the following large hydroelectric power stations will be put into operation: "Studen kladenets," with a capacity of 60,000 kilowatts; "Pasarel" and "Kokalyane," with a total of 48,000 kilowatts; "Stara Zagora," with 22,000 kilowatts; "Beli Iskur," with 16,000 kilowatts; and power stations of the Batak Waterway with a total capacity of 98,000 kilowatts. Use of these hydroelectric power stations will result in an annual saving of approximately 1.2 million tons of hard coal to Bulgaria. Moreover, power production by large hydroelectric power stations is four to five times less expensive than that of thermal electric power stations. On the other hand, their construction takes more time and is about 50 percent more expensive than the construction of thermal electric power stations.

In addition to the above hydroelectric power stations, the Second Five-Year Plan includes completion of the "Petrokhan," "Burziya," "G. Dimitrov," and other hydroelectric power stations, construction of which began during the First Five-Year Plan. Many of these stations are being built at dams serving the irrigation system and will be working chiefly during the dry summer months when the need for electric power is greatest and coincides with the needs of agriculture.

Thermal Electric Power Stations

During the Second Five-Year Plan, construction of thermal electric power stations will also continue on a larger scale than during the First Five-Year Plan. Being expanded are the "V. Chervenkov: and "Republika" thermal electric power stations, with a capacity of 25,000 kilowatts each; the "Stalin," with 50,000 kilowatts; and the "Dimitrovo," with 12,500 kilowatts. The large thermal electric power stations to be constructed under the Second Five-Year Plan will

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carry the basic electric power load and will be built near mines producing low-calorie coal, such as lignite of 1,300 - 1,800 kilocalories per kilogram and brown coal (kafyavi vuglishta) of about 2,500 kilocalories per kilogram. Many of these power stations are being built as dual-purpose thermalelectric power stations for supplying both the needs of large industrial enterprises, such as the "Stalin" Chemical Combine, the "Lenin" Metallurgical Plant, and the Briquette Plant and Dry Kiln in Maritsa Iztok, and the needs of cities, such as Sofia, Dimitrovo, and Dimitrovgrad.

Small Power Stations

In addition to the construction of major electric power stations, the Second Five-Year Plan provides for the installation of small diesel-electric power stations, some of which will be put into operation in 1955. During the Second Five-Year Plan, a study of the possibilities of constructing small and medium-size hydroelectric power stations, chiefly in northern Bulgaria, will be undertaken.

Capital Investment for Electric Power

To complete this large-scale program for construction of electric power stations, the Second Five-Year Plan provides for a volume of capital investment approximately 90 percent higher than that of the First Five-Year Plan. The total volume of capital investment in construction of electric power stations will be about 28 percent of the total volume of capital investment in industry. With 1952 as the base year (1952 equals 100), the following index figures represent capital investments during the first three years of the Second Five-Year Plan:

Power Stations	Capital Investment		
	1953	1954	1955
Thermal electric and diesel-electric	150	445	645
Hydroelectric	140	324	375

In 1956 and 1957, capital investments in hydroelectric power stations will increase even more.

Maintenance of Power Facilities

Successful operation of electric power stations will depend to a large degree on the quality of repairs. Low-quality repairs of electric power installations rapidly lead to breakdowns. Because of low-quality repairs in 1954, there were serious breakdowns in the "Republika," the "V. Kolarov," and the "Maritsa I" thermal electric power stations and in other installations.

The Scientific Research Institute of the Ministry of Electrification can help considerably in modernizing the construction of dams and electric power stations and in improving the utilization of electric power capacity.

The timely and successful completion of the enormous socialist construction projects, such as the Batak Waterway, the "G. Dimtrov" Dam, and the "Stalin" Thermal Electric Power Station, requires the mustering of all possible engineering and technical personnel and electric power workers to the task.

Consumption of Electric Power

With the fulfillment of the plan for electrification during the Second Five-Year Plan, the temporary disproportion between electric power production and consumption will be overcome, and a more rapid expansion of all branches of Bulgaria's national economy will be assured.

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To achieve proper development of the national economy, it is not enough merely to increase the production of electric power. This power must also be properly distributed among the individual branches of the national economy and of industry in such a way that those consumers who have been charged with basic obligations in the fulfillment of the main national economic tasks are adequately supplied.

Distribution of electric power among the branches of the national economy will change in 1957, as shown in the following table:

Branches of National Economy	Percentage of Total Power Distribution Used	
	1952	1957
Industry	70.0	61.0
Transportation	2.0	2.9
Agriculture	5.7	6.0
Construction	3.7	4.9
Illumination and public consumption	16.0	16.8
Water supply, sewerage system, and other needs	2.6	8.4

The table shows that the largest consumer of electric power is industry, which consumed 70 percent of the total distributed electric power in 1952. During the Second Five-Year Plan, the relative weight of industry as an electric power consumer will decrease despite the fact that, in 1957 industry will require 78 percent more electric power than in 1952. While the relative share of power consumed by industry will decrease during the Second Five-Year Plan, the relative shares of electric power for transportation, agriculture, construction, and other needs will increase. This is due to expanded mechanization and electrification in those fields and to their proportional growth according to plan along with industry, which even now is giving them ever-increasing aid in the development of their production base.

Electrification of transportation applies chiefly to railroads and urban transportation. Electrification in agriculture signifies mainly electrification of threshing, stationary operations in TKZS, DZS, and MTS, and expansion of irrigation. Development of large-scale socialist construction of dams, canals, tunnels, roads, enterprises, electric power stations, public buildings and housing, etc., requires the introduction of a large number of machines and equipment, such as compressor stations, dredges, cranes, cableways, conveyer belts, stone-crushing machines, concrete mixers, earth-drilling equipment, etc., which require great amounts of electric power. Therefore, the Second Five-Year Plan foresees both an absolute as well as a relative increase of electric power for consumption by construction in comparison with the First Five-Year Plan.

In connection with fulfilling the basic task of the Second Five-Year Plan, electric power for illumination and for cultural and public needs will also increase, both absolutely and relatively. On 9 September 1944, 93 towns and 691 villages were electrified, representing 13 percent of the total number of settlements in Bulgaria. At the end of 1952, 2,704 settlements of a total of 6,078 settlements were electrified, i.e., 45 percent of all populated places. During the Second Five-Year Plan, electrification will increase even further and will embrace approximately 70 percent of all settlements in Bulgaria.

The Electrical Industry

Considerable successes during the Second Five-Year Plan will also be achieved in the field of electrical industry. Before 9 September 1944, this industrial

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branch was virtually nonexistent. Its share of total industrial production was only 0.04 percent in 1939. The few existing electrical enterprises were small-scale and of an artisan nature.

The foundations for an electrical industry were laid during the people's rule through the construction of a number of large-scale industrial enterprises, such as the "V. Kolarov" High Current Plant, the "Kl. Voroshilov" Low Current Plant, the "Lenin" Electrical Porcelain Plant, the "V. Kolarov" Cable Plant, and the Electric Light Bulb Plant. Whereas production of the metalworking industry during the Second Five-Year Plan will increase 83 percent that during the First Five-Year Plan, production of the electrical industry will increase 250 percent. The Bulgarian electrical industry is already producing a major portion of the products required for electrification of the country.

Taking 1948 as the base year (1948 equals 100), the index figure representing electrical industry production was 249 in 1949, 379 in 1950, 504 in 1951, 654 in 1952, and 890 in 1953. In only 5 years, production of the electrical industry was almost nine times that of 1948.

Production of the more improtant electrical equipment has been increasing annually, as shown by the following index figures (1948 equals 100):

Year	Transformers	Electric Motors	Radio Receivers	Telephones	Electric Bulbs	Electric Home Appl.	Electric Conductors
1949	267	1,200	104	104	329	1,320	186
1950	487	1,870	294	173	670	2,820	230
1951	570	2,350	330	214	670	4,350	390
1952	721	2,880	416	208	880	5,350	520
1953	1,213	3,505	1,100	814	1,508	5,383	1,180

The Second Five-Year Plan provides for a further expansion of the electrical industry. According to plan, the industry will master production of various products, including electric generators for water and steam turbines, large transformers, instruments of all kinds, cable, and electric porcelain.

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